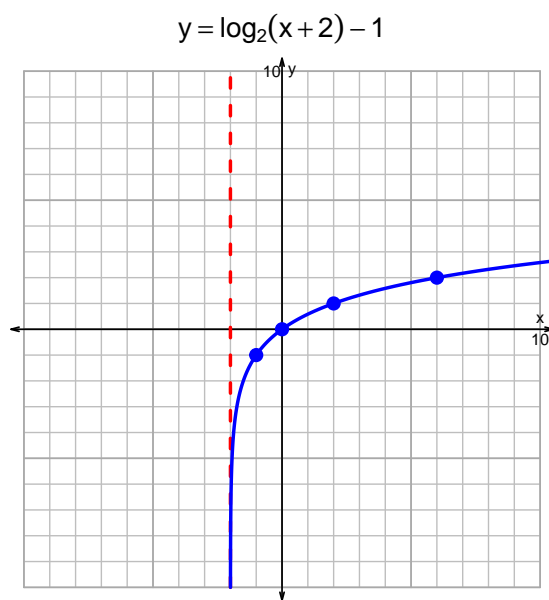
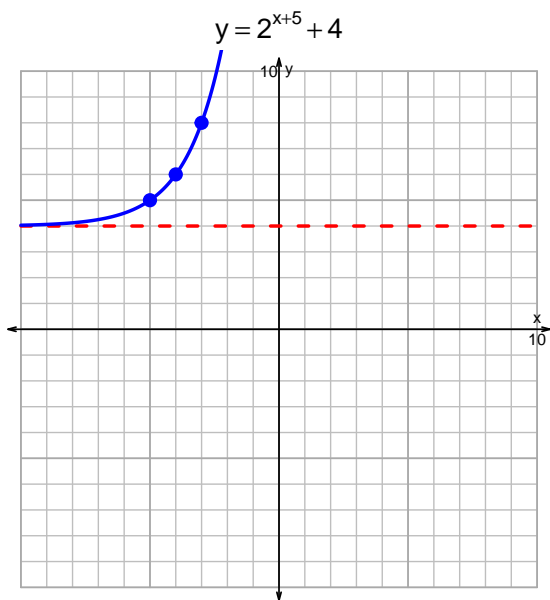


Name: _____

Date: _____

s18: EXP LOG (SLTN v322)

1. (10 pts) Graph $y = 2^{x+5} + 4$ and $y = \log_2(x+2) - 1$ on the grids below. Also, draw any asymptotes with dashed lines.



Somewhat useful hint: $2^3 = 8$, and thus $\log_2(8) = 3$.

2. (10 pts) Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression. Please do not do any arithmetic; just move numbers around.

$$-13 = \left(\frac{-5}{3}\right) \cdot 2^{-7t/4}$$

Divide both sides by $\frac{-5}{3}$.

$$\frac{13 \cdot 3}{5} = 2^{-7t/4}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{13 \cdot 3}{5}\right) = \frac{-7t}{4}$$

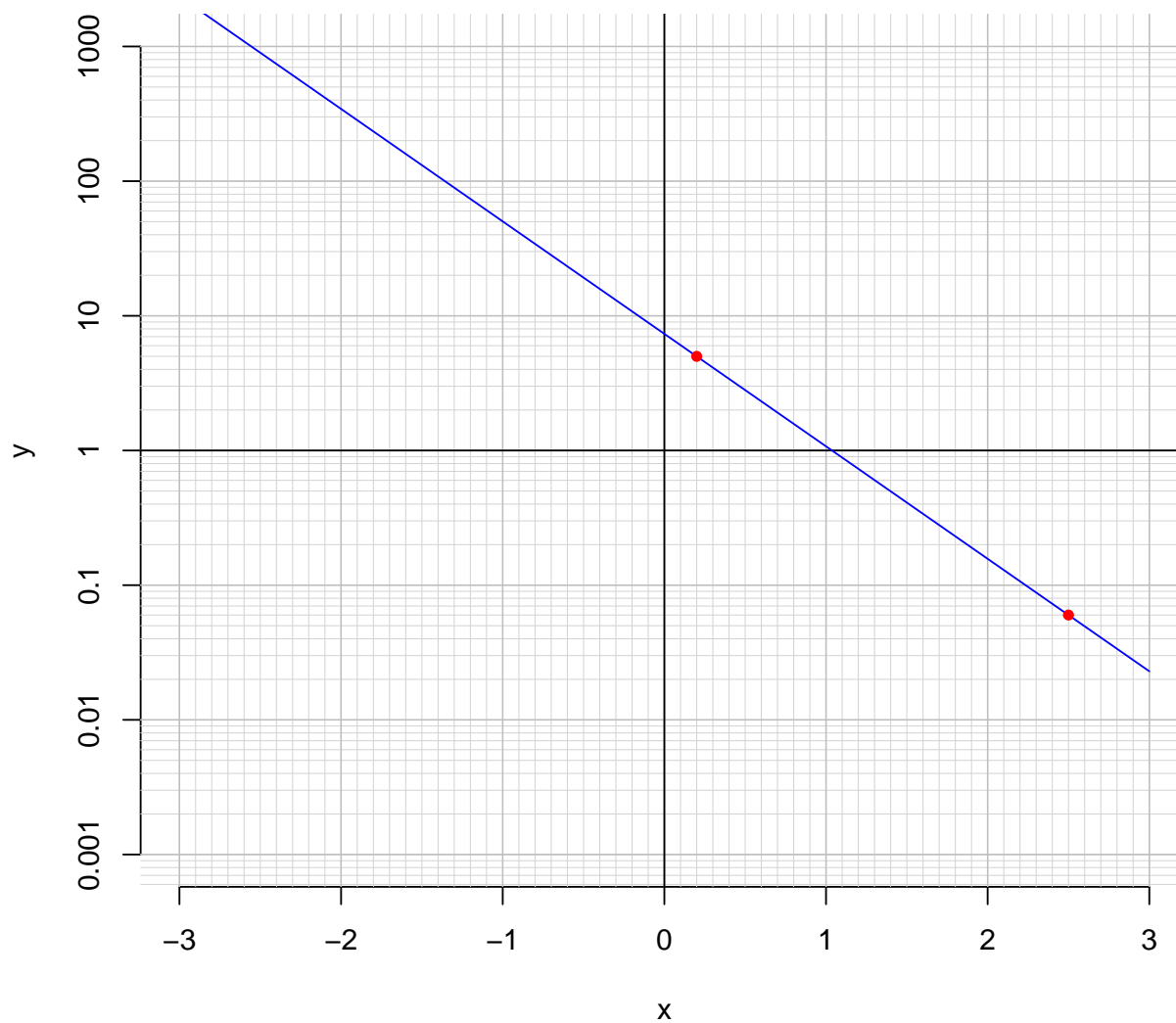
Divide both sides by $\frac{-7}{4}$.

$$\frac{-4}{7} \cdot \log_2\left(\frac{13 \cdot 3}{5}\right) = t$$

Switch sides.

$$t = \frac{-4}{7} \cdot \log_2\left(\frac{13 \cdot 3}{5}\right)$$

3. (10 pts) An exponential function $f(x) = 7.35 \cdot e^{-1.92x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(0.2)$.

$$f(0.2) = 5$$

- b. The inverse function is logarithmic.

$$f^{-1}(x) = \frac{-1}{1.92} \cdot \ln\left(\frac{x}{7.35}\right)$$

Using the plot above, evaluate $f^{-1}(0.06)$.

$$f^{-1}(0.06) = 2.5$$